

REMARKS/ARGUMENTS

Claims 1, 2, 7 and 21-35 were pending. Claim 7 is allowed. Claims 21-35 were objected to as dependent upon a rejected base claim but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1, 7 and 27 (first occurrence) have been amended and Claim 35 has been canceled. New Claims 36-47 have been added. Claims 3-6 were canceled in the Amendment After Final Action dated May 2, 2005, which Applicants understand was entered.

Claims 1, 2, 7, 21-34 and 36-47 are pending.

In the amendment filed on November 11, 2004, there were two claims numbered 27 and no claim 26. Applicants have corrected this error in this amendment by renumbering the first occurrence of Claim 27 as Claim 26.

The Applicants wish to thank the Examiner for the telephone interview which he granted to Applicants' attorney on July 7, 2005.

In that interview, the rejection of Claim 1 as being anticipated by U.S. Patent No. 5,013,688 to Yamazaki et al. ("Yamazaki") was discussed. Claim 1 was rejected on the basis of the statement in Yamazaki that the "surface of the center bases have been formed with rough surfaces in order to expedite the strength of connection between the frames and the moulding which is to be provided in the following process" (col. 2, lines 37-41). Applicants' attorney noted that this statement is somewhat confusing because Yamazaki deposits a "silicon nitride coating on the chips, the leads and the connection therebetween" (see col. 3, lines 4-14). Only after the silicon nitride coating has been deposited do the assemblies "undergo moulding process" (col. 3, lines 19-20). Thus it is not entirely clear from Yamazaki how the roughening of the leadframes increases the strength of connection between the leadframes and the moulding compound given that the leadframes are apparently covered by a silicon nitride coating before the moulding process is performed.

The Examiner indicated that Claim 1 might be allowable if it were amended to recite that the leadframe is in contact with the capsule. Accordingly, Claim 1 has been amended to contain the following limitation:

a capsule comprising a molding compound, said capsule enclosing at least a portion of said die and at least a portion of said leadframe, said molding compound being in contact with said chemically-etched surface of said leadframe so as to reduce the possibility of separation between said molding compound and said leadframe as said package undergoes thermal cycles and/or to inhibit the ingress of moisture into said package.

Applicants submit that Claim 1, as amended, is clearly allowable over Yamazaki, since Yamazaki deposits a silicon nitride coating before applying the molding compound. This is apparently a critical aspect of Yamazaki's disclosure. Yamazaki's abstract, for example, states: "In advance of the moulding process, the IC chip is coated with silicon nitride in order to protect the IC chip from moisture invaded [sic] through cracks or gaps." The detailed description indicates that the silicon nitride coats the leadframe as well as the chip (col. 3, line 13).

Moreover, Applicants believe that Claim 1 is also allowable for a second, independent reason.

The Advisory Action dated May 23, 2005, stated that the Applicants have the burden to "come forward with evidence establishing an unobvious difference between the claimed product and the prior art product." There are strong indications in Yamazaki that his surface is physically different from Applicants' "chemically-etched surface." At one point Yamazaki states that his silicon nitride coating "reaches to 1000 ± 200 angstroms" (col. 3, lines 14-15). This is equivalent to 0.08 to $0.12 \mu\text{m}$. At another point Yamazaki states that the thickness of the coating may be "300 to 5000 angstroms in general", or from 0.03 to $0.5 \mu\text{m}$ (col. 3, lines 57-58). In short, Yamazaki indicates that the thickness of his silicon nitride coating could be as low as $0.03 \mu\text{m}$. The measured roughness (R_a) of Applicants' chemically-etched surface is in the range of 0.05 to $0.17 \mu\text{m}$ (see page 10, line 6, of the specification). Applicants consider it unlikely that Yamazaki would recommend depositing a coating that could be as thin as $0.03 \mu\text{m}$ on a surface that has a roughness (R_a) of 0.05 to $0.17 \mu\text{m}$. In their view, this is substantial evidence that there is an

“unobvious difference” between Yamazaki’s surface and Applicants’ claimed “chemically-etched surface.”

As Applicants’ attorney noted in the interview, it is difficult to demonstrate to an absolute certainty that Applicants’ chemically-etched surface is different from Yamazaki’s surface because Yamazaki does not indicate how his rough surface is formed. This vagueness reduces the strength of Yamazaki as a prior art reference: one simply cannot tell for certain what his roughened surface looks like. In view of this difficulty, Applicants submit that the inferences that one can draw from Yamazaki satisfy their burden of showing an “unobvious difference” between Yamazaki’s leadframe and their “chemically-etched” leadframe.

To summarize, Applicants believe that Claim 1 is allowable over Yamazaki for two independent reasons: (a) by reciting “said molding compound being in contact with said chemically-etched surface of said leadframe,” Claim 1 clearly distinguishes over Yamazaki, and (b) there is substantial evidence that Yamazaki’s surface is physically different from Applicant’s “chemically-etched” surface.

Claims 2 and 21-34 depend from Claim 1 and are allowable for at least the same reasons.

Claim 7, which is allowed, has been amended to correct an obvious clerical error and to recite “a capsule enclosing at least a portion of said die.” Neither of these changes affects the patentability of Claim 7. New Claim 36 depends from Claim 7 and is also allowable.

New Claims 37-42 and 47 depend from Claim 1 and are allowable for at least the same reasons. Support for Claims 37-42 and 47 can be found at the following locations in the application:

Claim 37	Page 5, lines 30-31, Figs. 5D, 5E
Claim 38	Page 6, lines 3-5, Fig. 7A
Claim 39	Page 6, lines 6-8, Figs. 8A-8C
Claim 40	Page 6, lines 5-6, Figs. 7A-7C
Claim 41	Page 6, lines 1-2, Figs. 6A-6C
Claim 42	Page 9, lines 6-7
Claim 47	Page 10, line 9

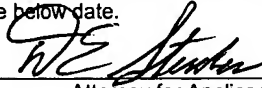
Claim 35 has been canceled and replaced in part by Claims 43-46.

Along with the Amendment dated November 11, 2004, Applicants paid the fees for 35 claims and 3 independent claims. There are 29 claims pending of which 2 are independent. Accordingly, Applicants believe that no additional excess claims fees are due. Nonetheless, the Examiner is authorized to charge any additional fees due to Deposit Account No. 50-2263.

For the above reasons, Applicants respectfully request allowance of Claims 1, 2, 7, 21-34 and 36-47. Should the Examiner have any questions concerning this response, the Examiner is invited to call the undersigned at (408) 982-8200, ext. 1.

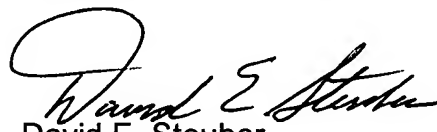
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Attorney for Applicant(s)

7/20/05
Date of Signature

Respectfully submitted,


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